Karnataka Material Test House Pvt. Ltd.,

Soil Investigation, Concrete and NDT Testing ,Topo Survey, & Project management Consultancy

CIN No: U74210KA2004PTC035137 G S T No: 29AACCK4994Q1ZI PAN No: AACCK4994Q

No.KMTH/PMC/YD/2021-22/W3 Date:13-12-2021

To,
The Executive Engineer
Yelahanka division,
Bruhat Bengaluru Mahanagara Palike, Bengaluru.

"PMC CERTIFICATE AND INSPECTION REPORT"

Dear Sir,

Sub: Regarding inspection report for the below mentioned work.

Name of Work: Improvements to Roads and Drains and other developmental works in Attur Ward No-03 Under Road Development head in Chief Minister Navanagaraothana of Yelahanka Division (Package -02)

Item No	Description Of Work	Unit	Quantities		Total Quantity
			1st&Part	2nd&Final	
1	KSRRB-200-8 Clearing and grubbing road land including uprooting rank vegetation grass bushes shrubs and trees of girth upto 300mm by manual means in area of lights jungles removal of stumps disposal of unservicable materials stacking of servicable materials labour charges complete as per specification	Sqm	1213.37	0.00	1213.37
2	KSRRB 300-49 scarifying bituminous course 50mm to 75mm thick along with premix carpet I surface dressing by manual means without disturbing the base and stacking of the debris materials including cost of all labours charges complete as per specification MORTH I Chapter 3	Sqm	28672.40	0.00	28672.40
3	KSRRB M300-59.2. Loosening levelling and compacting original ground supporting embackment to facilitate placement of first layer of embackment / subgrade scarified to a depth of 150mm mixed with water at OMC and then compacted by rolling so as to achieve minimum dry density as given in table 300-2 for embackment/ subgrade including HOM construction , labour etc.,	Sqm	50943.64	1129.61	52073.25
4	KSRRB M300-14 Excavation for roadswork in all types of soil by mechanical means including cutting and loading to tippers, trimming bottom ans side slopes, in accordance with requirement of lines, grades and cross sections, and transportation with a lead of 1.00	Cum	12731.99	1375.12	14107.11

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5	KSRRB M300-19 Removal of unservicable soil including excavation , loading and disposal but excluding replacement by suitable soil which shall be paid seperately as per clause 300.5 complete as per specifications. MORTH specification No.301	Cum	12730.31	1375.69	14106.00
6	Construction of granular sub-base Grading-v as sub-base and drainage layer by providing coarse graded crushed stone aggregates of granitr/trap/basalt materials, mixing by mix in place method by rotavatory at OMC spreading in uniform layers with motor grader on prepared surface and compacting with vibrator power roller to achieve the 98% proctor density, complete as per specifications. Clause 401 of MORTH V revision.	Cum	7731.69	0.00	7731.69
7	KSRRB M400-17 Proving, laying, spreading and compacting crushed stone aggregates of granite/trap/basalt to wetmix macadam specifications including pre mixing the materials with water at OMC in mechanical mix plant carriage of mixed materials by tippers to site, laying in uniform layers with paver in sub-base/base course on well prepared surface and compacting with vibratory rollers to achieve the desired density complete as per specifications. MORTH specification No. 406	Cum	12569.41	1233.21	13802.62
8	KSRRB 500-2 Cleaning the existing black topped surface with brooms soft brush and finallydusting with old gunny bags and /or compressed air to achieve bituminous treatment including cost of all materials. Labour, HOM of mechanical complete as per specifications MORTH specifications clause 501	Sqm	13190.05	5134.80	18324.85
9	KSRRB M500-6 providing and applying prime coat with cut bituminous emulsion on prepared surface of granular base such as WMM including cleaning of roads surface and spraying primer at the rate of 0.60 kg per sqm using mechanical means complete as per specifications MORTH specifications No. 502	Sqm	48774.08	2769.92	51544.00
10	KSRRB 500-7 Providing and applying tack coat using 80/100 grade bitumen (VG10) on the prepared black topped surface at 0.25 kg per sqm heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials labour HOM of machineries complete as per specifications MORTH Chapter 5	Sqm	55910.51	4726.00	60636.51

11	KSRRB M500-17. Providing and laying dense graded bituminous macadam using crushed aggregates of specified grading, premixed with VG30 grade bituminous binder and, transporting the hot mix to work site, laying to the required grade, lavel and allignment, rolling with smooth wheeled, vibratory and tandom rollers to achieve the desired compaction as per MORTH table 500-10 Complete in all respects compete as per specifications MORTH specification No. 507. using 100/120 TPH capacity HMP with sensor paver Gr-II (50mm to 75mm) with 4.5 % VG-30 Bitumen.	Cum	2448.36	184.68	2633.04
12	providing and laying bituminous concrete 40mm thick with hot mix plant, using 40-60 TPH capacity HMP with mechanical paver grading II (30-45mm) with 5.4% of modified bituminious binder consisting of 4.97% of VG-30 bitumen (60/70 grade) and o.43% of plastomeric thermoplastic(waste plastic) crushed aggregates of specified grading pre mixxed with bituminous binder and filler, transporting the hot mix to the work site, laying with a paver finisher to the require grade, level and allignment and rolling with the smooth wheeled, vibratory and tandom rollers to achieve the desired compaction in all respect complete as per specifications. Clause 507 of MORTH V revision as per IRC SP-53-2015.	Cum	2236.42	189.00	2425.42
13	KSRRB M800-35. Supply and installation of molded shank raised pavment markers made up of poly carbonate and ABS (acrylonitrile Butadiene styrene) molded body and reflective pannels with microprismatic lens capable of providing total internal reflection of the light entering the lense face and shall support load of 16000 KG tested in accordance to specifications	No's	2721.00	278.00	2999.00
14	KSRRB M800-13. Road marking with hot applied thermoplastic compound with reflectrising glass beads on bituminous surface / concrete surface : providing and laying of hot applied thermo plastic compound 2.5mm thick including reflectorising glass beads at 250gms per sqm area thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35 standards specified.complete as per specifications.	Sqm	3388.66	284.05	3672.71

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15	Providing and Constructing dry lean cement concrete mix CC1:5:10 base with OPC 25mm and down size graded granite metal coarse aggregates at 0.86cum and fine aggregates @0.58cum over a prepared sub-base, coarse and fine aggregatesconforming to IS: 383-2016, aggregates gradation after blending to be as per table 600-1 optimum moisture content to be determined during trial length construction concrete strength not to be less tham 10Mpa at 7 days mixed in a batch mixer plant transportated to site, laid with a paver, compacting with 8-10 tonnes vibratory roller	Cum	105.71	0.00	105.71
16	Constructing Un-reinforced plain cement concrete for pavements using grade concrete M30 over a prepared base with OPC coarse aggregates at 0.69Cum fine aggregates at 0.46cum coarse and fine aggregates conforming to IS: 383-2016, with superplastisizer at 3 its conforming to IS: 9103-2008 mixed in a concrete mixer of not less than 0.6cum capacity and appropriate weight batcher as per approved mix design laid in approved fixed side form work and spreading the concrete with shovels, rackers compacted using needles screed and plate vibrator and finished with floaters in a contineous operation including provision of contraction and cover the surface by gunny bags for curing.	Cum	140.95	0.00	140.95
17	KSRRB M2900-1. Plain cement concrete M10 mix with crushed stone aggregates 40mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing including cost of materials, labour,HOM completed as per specifications	Cum	53.25	75.71	128.96
18	Providining & fixing precaste solid concrete kerb stones of size 450X200X400mm maid out of CC 1:2:4 and finished with CM 1:3 plastering and finishing cutting etc., complete.	No's	0.00	4256.50	4256.50
19	KSRRB 800-1 Painting two coats after filling surface with synthetic enamel paint in approved shades on new plastered concrete surface with materials, labour complete as per specifications.	Sqm	0.00	862.43	862.43

20	KSRB 14.6-1 : Providing and laying heavy duty cobble stones 60mm thick interlock pavers, using cement and course sand for manufacture of blocks od approved size, shape and colour with a minimum compressive strength of 281kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specification.	Sqm	3070.44	5021.92	8092.36
21	Dismantelling/ removing and resetting of footpath slabs, disposal of unservicable materials and stackling th eservicable materials with all lifts and lead of including cost of labours charges complete as per specification as direcetd by the engineer with all leads and lift etc complete as per specifications.	Sqm	1078.68	4171.44	5250.12
22	KSRRB300-1. Earthwork excavation by manual means for Drains and similar works in ordinar soil excavated surface levelled and sides neatly dressed, the dispossed earth to be levelled neatly after breaking of clods completed as per specifications. KPWD S.R 2018-19.	Cum	53.25	1403.10	1456.35
23	KSRRB M2200-6. Providing TMT Bars Fe 500 steel reinforcement for RCC work including Straightening, cutting, bending, hooking, placing in position, lapping and/or welding whereever required, tying with binding wire and anchoring to the adjoining members whereever necessary completed as per design ans specification.	Tonnes	1.40	4.05	5.45
	providing and laying plain/reinforced cement concrete side drain walls and bottom thickness 15cm using M20 nominal mix concrete with OPC at 300kgs. With 20mm and down size granite metal coarse aggregates at 0.69cum and fine aggregates at 0.43 cum machine mixed, well compacted for walls and bottom including centring, shuttering, cost of materials, HOM of machinery, curing etc., completed as per specification.	Cum	25.03	149.91	174.94

25	providing and fixing precast reinforced concrete slab 10cm thick of mix M20 using 20mm and downsize graded granite metal using reinforcement 10mm dia steel at 150mm C/c both ways.	Sqm	0.00	2943.09	2943.09
26	Provoding and laying Precast Drain cover slabs of 250mm thick of mix M20 using graded granite jelly 20mm & downsize with steel reinforcement complete as per specification.	Sqm	53.25	142.65	195.90
27	Removing and resetting of Stone slabs of draina and pointing in C:M 1:3	Sqm	0.00	290.34	290.34
28	KSRRB M200-15.1 Dismantelling of Existing Structures like culverts bridges retaining wall and other structures comprising of masonry cement concrete wood work Etc., Complete as per specifications.	Cum	14.20	0.00	14.20
29	KSRRB M200-24 Dismantelling of cement concrete pavement by mechanical means using pneumatic tools breaking to pieces not excluding 0.02 Cum in Volume and stock piling at dismanteled location and disposal of dismanteled materials stackling servicable and unservicable materials seperate complete as per specifications MORTH Specification No.202	Cum	412.23	0.00	412.23

With respect to the above subject and name of work, We have inspected the work , Quantity and Quality of above mentioned Items of work was found to be satisfactorily completed for the 2nd and Final Bill.

Thanking You,

With regards
Karnataka Material Test House Pvt Ltd.,

Narayanswamy.B
Managing Director

AE

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To,
The Executive Engineer,
Yelahanka Old Town,
Sub Division, Bengaluru.

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Name of work:"Improvements to Roads and Drains and other developmental works in Attur Ward No-03 Under Road Development head in Chief Minister Navanagaraothana of Yelahanka Division (Package -02)"

1	KSRRB M300-59.2. Loosening levelling and compacting original ground supporting embackment to facilitate placement of first layer of embackment / subgrade scarified to a depth of 150mm mixed with water at OMC and then compacted by rolling so as to achieve minimum dry density as given in table 300-2 for embackment/ subgrade including HOM construction , labour etc., complete as per specification. MORTH specification No. 305.3.4	Cum	1129.61
2	KSRRB M300-14 Excavation for roadswork in all types of soil by mechanical means including cutting and loading to tippers, trimming bottom ans side slopes, in accordance with requirement of lines, grades and cross sections, and transportation with a lead of 1.00 km and complete	Cum	1375.12
3	KSRRB M300-19 Removal of unservicable soil including excavation , loading and disposal but excluding replacement by suitable soil which shall be paid seperately as per clause 300.5 complete as per specifications. MORTH specification No.301	Cum	1375.69
4	KSRRB M400-17 Proving, laying, spreading and compacting crushed stone aggregates of granite/trap/basalt to wetmix macadam specifications including pre mixing the materials with water at OMC in mechanical mix plant carriage of mixed materials by tippers to site, laying in uniform layers with paver in sub-base/base course on well prepared surface and compacting with vibratory rollers to achieve the desired density complete as per specifications. MORTH specification No. 406	Cum	1233.21

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5	KSRB 14.6-1 : Providing and laying heavy duty cobble stones 60mm thick interlock pavers, using cement and course sand for manufacture of blocks od approved size, shape and colour with a minimum compressive strength of 281kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete as per specification.	Sqm	5021.92
6	KSRRB 500-2 Cleaning the existing black topped surface with brooms soft brush and finallydusting with old gunny bags and /or compressed air to achieve bituminous treatment including cost of all materials. Labour, HOM of mechanical complete as per specifications MORTH specifications clause 501	Sqm	5134.80
7	KSRRB M500-6 providing and applying prime coat with s.s bituminous emulsion on prepared surface of granular base such as WMM including cleaning of roads surface and spraying primer at the rate of 0.60 kg per sqm using mechanical means complete as per specifications MORTH specifications No. 502	Sqm	2769.92
8	KSRRB M500-17. Providing and laying dense graded bituminous macadam using crushed aggregates of specified grading, premixed with VG30 grade bituminous binder and, transporting the hot mix to work site, laying to the required grade, lavel and allignment, rolling with smooth wheeled, vibratory and tandom rollers to achieve the desired compaction as per MORTH table 500-10 Complete in all respects compete as per specifications MORTH specification No. 507. using 100/120 TPH capacity HMP with sensor paver Gr-II (50mm to 75mm) with 4.5 % VG-30 Bitumen.	Cum	184.68
9	KSRRB 500-7 Providing and applying tack coat using 80/100 grade bitumen (VG10) on the prepared black topped surface at 0.25 kg per sqm heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials labour HOM of machineries complete as per specifications MORTH Chapter 5	Sqm	4726.0

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10	providing and laying bituminous concrete 40mm thick with hot mix plant, using 40-60 TPH capacity HMP with mechanical paver grading II (30-45mm) with 5.4% of modified bituminious binder consisting of 4.97% of VG-30 bitumen (60/70 grade) and o.43% of plastomeric thermoplastic(waste plastic) crushed aggregates of specified grading pre mixxed with bituminous binder and filler, transporting the hot mix to the work site, laying with a paver finisher to the require grade, level and allignment and rolling with the smooth wheeled, vibratory and tandom rollers to achieve the desired compaction in all respect complete as per specifications. Clause 507 of MORTH V revision as per IRC SP-53-2015.	Cum	189.00
11	KSRRB M800-35. Supply and installation of molded shank raised pavment markers made up of poly carbonate and ABS (acrylonitrile Butadiene styrene) molded body and reflective pannels with microprismatic lens capable of providing total internal reflection of the light entering the lense face and shall support load of 16000 KG tested in accordance to specifications of catagory A of MORTH circular No. RW/NH/33023/10-97 - DO III Dt 11.06.1997. the height width and length shall not exceed 50mm, 100mm and 102mm and with minimum reflective area of 13Sqcm on each side and the slope to the base shall be 35o the strength of detachment of the intergated cylindrical shanks (of diameter not less than 19mm and height not less than 30mm) from the body is to be a minimum value of 500KG. fixing will be by drilling hole on the road for the shanks to go inside, with out nails and using Epoxy resin based adhesive as per manufacuter recommendations and complete as directed by the engineer	No's	278.0
12	KSRRB M800-13. Road marking with hot applied thermoplastic compound with reflectrising glass beads on bituminous surface / concrete surface : providing and laying of hot applied thermo plastic compound 2.5mm thick including reflectorising glass beads at 250gms per sqm area thickness of 2.5mm is exclusive of surface applied glass beads as per IRC:35 standards specified.complete as per specifications.	Sqm	284.05
13	KSRRB300-1. Earthwork excavation by manual means for Drains and similar works in ordinar soil excavated surface levelled and sides neatly dressed, the dispossed earth to be levelled neatly after breaking of clods completed as per specifications. KPWD S.R 2018-19.	Cum	1403.10
14	KSRRB 800-1 Painting two coats after filling surface with synthetic enamel paint in approved shades on new plastered concrete surface with materials, labour complete as per specifications.	Cum	75.71

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15	KSRRB M2200-6. Providing TMT Bars Fe 500 steel reinforcement for RCC work including Straightening, cutting, bending, hooking, placing in position, lapping and/or welding whereever required, tying with binding wire and anchoring to the adjoining members whereever necessary completed as per design ans specification.	Tonnes	4.05
16	providing and laying plain/reinforced cement concrete foe drain walls and bottom thickness 15cm using M20 nominal mix concrete with OPC at 300kgs. With 20mm and down size granite metal coarse aggregates at 0.69cum and fine aggregates at 0.43 cum machine mixed, well compacted for walls and bottom including centring, shuttering, cost of materials, HOM of machinery, curing etc., completed as per specification.	Cum	149.91
17	Removing and resetting of Stone slabs of drains and pointing in C:M 1:3	Sqm	290.34
18	Dismantelling/ removing and resetting of footpath slabs, disposal of unservicable materials and stackling th eservicable materials with all lifts and lead of including cost of labours charges complete as per specification as direcetd by the engineer with all leads and lift etc complete as per specifications.	Sqm	4171.44
19	providing and fixing precast reinforced concrete slab 10cm thick of mix M20 using 20mm and downsize graded granite metal using reinforcement 10mm dia steel at 150mm C/c both ways.	Sqm	2943.09
20	supplying and fixing precast reinforced concrete slab 250mm thick of mix M20 using 20mm and downside graded granite metal using reinforcement 10mm dia steel at 150mm c/cboth ways cost of transportation, hire charges of machinary, machine cutting the vertical face to get plain even surface etc., complete with all leads and lift conveyance charges, labour charges inclusive of cost of materials.	Sqm	142.65
21	Providining & fixing precaste solid concrete kerb stones of size 450X200X400mm maid out of CC 1:2:4 and finished with CM 1:3 plastering and finishing cutting etc., complete.	No's	4256.50
22	Providining & fixing precaste solid concrete kerb stones of size 450X200X400mm maid out of CC 1:2:4 and finished with CM 1:3 plastering and finishing cutting etc., complete.	Sqm	862.43

With respect to the above subject and name of work, We have inspected the work, Quantity and Quality of above mentioned Items of work was found to be satisfactorily completed for the 2nd And Final Bill

Thanking You,
With Regards

Karnataka Material Test House Pvt Ltd.,
Narayanswamy.B
Managing Director

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